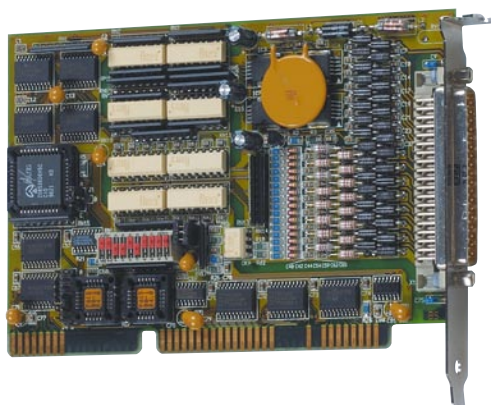


Digital I/O board, 32 isolated channels, 24 V



LabVIEW™



LabWindows/CVI™

Features

Inputs

- 16 isolated inputs, 24 V, incl. 14 interruptible
- Voltage reversal protection
- All inputs are filtered

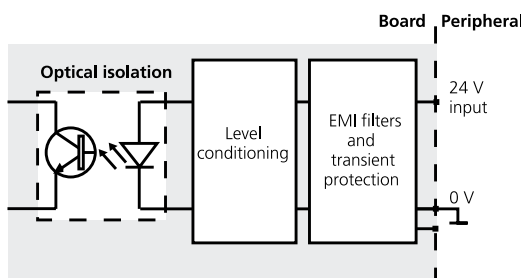
Outputs

- 16 isolated outputs, 10 to 36 V
- Output current per channel 500 mA
- At Power-on, the outputs are reset to "0"
- Timer-programmable watchdog for resetting the outputs to "0"
- Diagnostic report through status register in case of short-circuit, overtemperature, voltage drop or watchdog
- Short-circuit current for 16 outputs ~ 3 A typ.
- Short-circuit current per output ~1.5 A typ.
- Self resetting fuse (electronic fuse)
- Overtemperature and overvoltage protection
- 24 V power output with protective diodes and filters
- Output capacitors minimise electromagnetic emissions
- Voltage supply screened through a protective circuitry
- Interrupt triggered through watchdog
- Address range freely configurable through DIP switches, 8-bit/16-bit access

Safety features

- Optical isolation 1000 V
- Creeping distance IEC 61010-1 (VDE411-1)
- Protection against fast transients (Burst), overvoltage, electrostatic discharge and EMI
- Separate ground line for the inputs and the outputs
- Shut-down logic when the external supply voltage drops below 5 V.

Protective circuitry for the input channels



PA 1500

16 digital inputs 24 V,
incl. 14 interruptible inputs

16 digital outputs, 24 V, 500 mA/channel

Optical isolation 1000 V

Input and output filter

Watchdog

At power-on the outputs are reset to "0"

Timer

EMC tested acc. to 89/336/EEC

- IEC 61326: electrical equipment for measurement, control and laboratory use

Applications

- PLC connection
- Control of industrial PC-based process
- Industrial measurement
- Acquisition of sensor data
- Signal analysis
- Machine interface
- ...

Software drivers

A CD-ROM with the following software and programming examples is supplied with the board.

Standard drivers for:

- Windows XP/2000/NT/98/95, Windows 3.11, MS-DOS,
- Real-time drivers for Windows XP/2000/NT/98/95
- Monitorprogramm ADDIMON

Drivers for the following application software:

- LabVIEW 5.01, LabWindows/CVI 5.01

Samples for the following compilers:

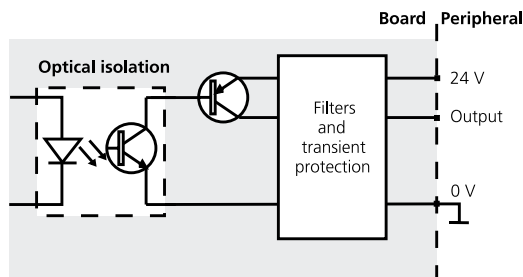
- Microsoft VC++ 5.0, Microsoft C 6.0, Borland C++ 5.01,
- Borland C 3.1, Visual Basic 5.0, Delphi 4,
- Turbo Pascal 7.0

On request:

- DiaDem 6, Visual Basic 1.0

Current driver list on the web: www.addi-data.com

Protective circuitry for the output channels



Digital I/O board, 32 isolated channels, 24 V

Specifications

Digital inputs

| | |
|-----------------------------|--|
| Number of inputs: | 16 (Common ground acc. to IEC 1131-2) |
| Optical isolation: | through optical couplers, 1000 V from the PC to the peripheral |
| Interruptible inputs: | 14 of the 16 digital inputs |
| Interrupt lines: | IRQ 3, 5 for XT, IRQ 10, 11, 12, 14, 15 for AT |
| Interrupt comparison logic: | AND and OR mode; OR priority |
| Nominal voltage: | 24 V |
| Input current at 24 V: | 6 mA typ. |
| Logic input level: | U nominal: 24 V UH max.: 30 V/current 9 mA typ. UH min.: 19 V/current 2 mA typ. UL max.: 14 V/current 0,6 mA typ. UL min.: 0 V/current 0 mA typ. |
| Signal delay: | 70 µs (at 24 V) |
| Maximum input frequency: | 5 kHz (at 24 V) |

Digital outputs

| | |
|----------------------------------|--|
| Outputs: | 16 outputs, isolated up to 1000 V |
| Output type: | High-side (Load at ground) acc. to IEC 1131-2 |
| Nominal voltage: | 24 V |
| Supply voltage: | 10 to 36 V, min. 5 V (through front connector) |
| Max. current for 16 outputs: | 3 A typ. |
| Output current/output: | 500 mA typ. |
| Output current for 16 channels: | 200 mA typ. per channel |
| Short-circuit current/output | |
| Shut-down at 24 V, Rload < 0.1Ω: | 1.5 A |
| RDS ON resistance: | 0.4 Ω max. |
| Switch-on time: | I out=0.5 A, Load = resistance: 120 µs |
| Switch-off time: | I out=0.5 A, Load = resistance: 40 µs |
| Overtemperature (shut-down): | 170 °C (output driver) |
| Temperature hysteresis: | 20 °C (output driver) |

Safety

| | |
|------------------|--|
| Shut-down logic: | When the ext. 24 V voltage drops below 5 V: the outputs are switched off. Diagnostic: status bit or interrupt to PC |
| Watchdog: | Timer-programmable, 5 µs to 9 s |

EMC – Electromagnetic compatibility

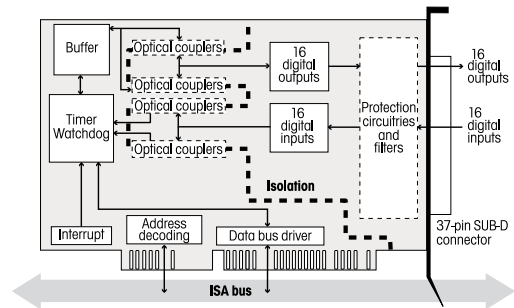
The product complies with the European EMC directive. The tests were carried out by a certified EMC laboratory in accordance with the norm from the EN 61326 series (IEC 61326). The limit values as set out by the European EMC directive for an industrial environment are complied with. The respective EMC test report is available on request.

Physical and environmental conditions

| | |
|----------------------|----------------------------------|
| Dimensions: | 156 x 99 mm |
| System bus: | ISA |
| Place required: | Short board, 1 AT or XT slot |
| Operating voltage: | +5 V, ± 5 % from PC |
| Current consumption: | 229 mA ±10 mA typ. |
| Front connector: | 37-pin SUB-D male connector |
| Temperature range: | 0 to 60 °C (with forced cooling) |

PA 1500

Simplified block diagram



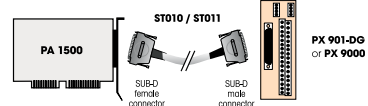
Pin assignment – 37-pin SUB-D male connector

| | | |
|-------------------|----|--------------------|
| Reserve | 37 | Dig. output 16 |
| Dig. output 15 | 36 | Dig. output 14 |
| Dig. output 13 | 35 | Dig. output 12 |
| Dig. output 11 | 34 | Dig. output 10 |
| Dig. output 9 | 33 | Dig. output 8 |
| Dig. output 7 | 32 | Dig. output 6 |
| Dig. output 5 | 31 | Dig. output 4 |
| Dig. output 3 | 30 | Dig. output 2 |
| Dig. output 1 | 29 | 0 V ext. (Outputs) |
| (Inputs) 0 V ext. | 28 | 24 V ext. |
| 24 V ext. | 27 | Dig. input 16 |
| Dig. input 15 | 26 | Dig. input 14 |
| Dig. input 13 | 25 | Dig. input 12 |
| Dig. input 11 | 24 | Dig. input 10 |
| Dig. input 9 | 23 | Dig. input 8 |
| Dig. input 7 | 22 | Dig. input 6 |
| Dig. input 5 | 21 | Dig. input 4 |
| Dig. input 3 | 20 | Dig. input 2 |
| Dig. input 1 | 1 | |

ADDI-DATA connection

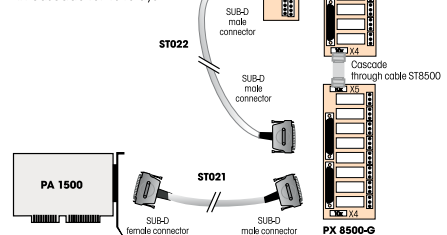
Example 1

Connection of the inputs and outputs through screw terminals boards



Example 2

- Connection of the inputs through screw terminal board PX 901-DG
- Connection of the outputs through relay output board PX 8500-G in cascade for 16 relays



PA 1500

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Connection

- PX 901-D:** Screw terminal panel, LED status display
- PX 901-DG:** Screw terminal panel for DIN rail, LED status display
- PX 9000:** 3-row screw terminal panel for DIN rail, LED status display
- PX 8500-G:** Relay output board for DIN rail, cascadable
- ST010:** Standard round cable, shielded, twisted pairs, 2 m
- ST011:** Standard round cable, shielded, twisted pairs, 5 m
- ST010-S:** Same as ST010, for high currents (24V supply separated)

- ST021:** Round cable between PA 1500 and PX 8500, shielded, twisted pairs, 2 m
- ST022:** Round cable between PX 8500 and PX 901, shielded, 2 m
- ST8500:** Ribbon cable for cascading two PX 8500

Ordering information